



**COUNTY OF LOS ANGELES  
FIRE DEPARTMENT  
FIRE PREVENTION DIVISION**

## **CRYOGENS PERMIT REQUIREMENTS**

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Article 1, section 105 of the Los Angeles County Fire Code states... a permit shall be obtained from the Fire Prevention Division prior to engaging in the following: ... except where federal or state regulations apply and except for fuel systems of the vehicle, to produce, store, or handle cryogenics in excess of the amounts listed in Table 105-B. See article 75. Additional requirements may be applicable.

**General** Partially full containers having residual cryogenic fluids shall be considered as full for the purposes of the controls required.

**Containers** Containers, equipment and devices which are not in compliance with recognized standards for design and construction may be approved upon presentation of satisfactory evidence that they are designed and constructed for safe operation.

**Concrete Containers** Concrete containers shall be built in accordance with the Building Code.

**Foundations and Supports** Containers shall be provided with substantial concrete or masonry foundations, or structural steel supports on concrete or masonry foundations. Foundations shall be constructed to withstand the low-temperature effects of cryogenic fluid spillage.

**Corrosion** Portions of containers in contact with foundations or saddles shall be painted to protect against corrosion.

**Pressure-relief Devices** Pressure-relief devices shall be provided to protect containers and systems from rupture in the event of overpressure. Pressure relief devices shall be located so they are readily accessible for inspection and repair. Shutoff valves shall not be installed between pressure-relief devices and containers.

**Marking** Cryogenic containers and systems shall be marked in accordance with nationally recognized standards and Section 7501.7. Visible hazard identification signs in accordance with Section 8001.7 shall be provided at entrances to buildings or areas in which cryogenic fluids are stored, handled or used. Portable containers shall be identified in accordance with nationally recognized standards. Stationary containers shall be identified with the manufacturing specification and maximum allowable working pressure with a permanent nameplate. The nameplate shall be marked in accordance with nationally recognized standards. Container inlet and outlet connections, liquid-level limit controls, valves and pressure gages shall be identified in accordance with one of the following: marked with a permanent tag or label identifying their function, or identified by a schematic drawing which portrays their function and designated whether they are connected to the vapor or liquid space of the container. The schematic drawing shall be attached to the container and maintained in a legible condition. Piping systems and emergency shut-off valves shall be identified in accordance with Section 8001.4.3.

**Security** Cryogenic containers and systems shall be secured against accidental dislodgment and unauthorized access. Containers, valves, piping and other appurtenances shall be protected against physical damage and tampering.

**Separation from Hazardous Conditions** Containers and systems in storage and use shall be separated from materials and conditions which present exposure hazards to or from each other in accordance with Section 7501.9. Stationary containers shall be separated from exposure hazards using distances in Table 7501.9.2-A. Transfer points and fill connection points shall not be closer to exposures than minimum distances required for stationary containers. Portable containers shall be separated from exposure hazards using distances in Table 7501.9.3-A. Containers shall be placed on surfaces compatible with the fluid in the container.

Electrical Electrical installations and equipment shall be in accordance with the Electrical Code. Containers and systems shall not be located where they could become part of the electrical circuit. Containers and systems shall not be used for electrical grounding. When electrical grounding is required the system shall be in accordance with the Electrical Code. The grounding system shall be protected against corrosion, including corrosion caused by stray electric currents.

Service and Repair Containers removed from service shall be handled in an approved manner. Containers shall not be used for any purpose other than a vessel for containing the product it was designed to contain. Leaking, damaged or corroded containers shall be removed from service. Service and repairs shall be performed by trained personnel in accordance with nationally recognized standards.

Storage Indoor storage of stationary and portable containers of cryogenic fluids shall be located in rooms, buildings or areas constructed in accordance with the Building Code. Ventilation of stationary and portable container storage areas shall be in accordance with the Mechanical Code. Stationary containers in areas subject to flooding shall be securely anchored or elevated to prevent the containers from separating from foundations. The area surrounding stationary and portable container storage shall be provided with a means to prevent accidental discharge of fluids from endangering adjacent containers, buildings, equipment or adjoining property.

Use and Handling Cryogenic fluid systems shall be suitable for the use intended and designed by competent persons. Where nationally recognized standards and good practices have been established for the process employed, such practices and standards shall be followed.

Piping Systems Piping systems, valves and accessory equipment shall be suitable for the intended use through the full range of temperature and pressure to which they will be subjected. Piping systems shall be designed and constructed to provide adequate allowance for expansion, contraction, vibration, settlement and fire exposure. Joints on container piping and tubing shall be threaded, welded, silver-brazed or flanged. Aboveground piping systems shall be protected from physical damage and well supported. Piping passing through walls shall be protected from mechanical damage. Aboveground piping, subject to corrosion, and all below ground piping shall be protected against corrosion. Piping systems shall be tested and proven free from leaks after installation as required by the standards to which they were designed and constructed.

Material-specific Requirements Readily available shutoff valves shall be provided to shutoff the cryogenic fluid supply in case of emergency. A shutoff valve shall be located at the source of supply and at the point where the system enters the building.

Dispensing Areas Dispensing of cryogenic fluids with physical or health hazards shall be conducted in approved locations. Dispensing indoors shall be conducted in areas constructed in accordance with the Building Code. In door areas where cryogenic fluids are dispensed shall be ventilated in accordance with Section 80004.2.2.2, Section 8004.2.3.3 and the Mechanical Code. Loading and unloading areas shall be constructed in accordance with requirements of the appropriate UFC standard. Limit controls shall be provided to prevent overfilling of stationary containers during filling operations.

Handling Cryogenic containers shall be moved using an approved method. Where cryogenic containers are moved by hand cart, hand truck or other mobile device, carts, trucks or devices shall be designed for the secure movement of the container. Carts and trucks used to transport cryogenic containers shall be designed to provide a stable base for the commodities to be transported and shall have a means of restraining containers to prevent accidental dislodgment. Pressurized containers shall be transported in a closed condition. Containers designed for use at atmospheric conditions shall be transported with appropriate loose-fitting covers in place to prevent spillage.

Additional Requirements \_\_\_\_\_

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